

ESTATES SALE PRICES AND VENUES IN SAVANNAH, GEORGIA

SAVANNAH, GEORGIA

- Oldest city in the state of Georgia.
- An industrial center and an important Atlantic seaport.
- Notable historic buildings, rich and ground art culture, warm weather, and access to the Atlantic Ocean.
- Savannah has long and tropical summer while the winter is rather short and mild.
- Known as the nation's largest historically restored urban area.



GOALS

- Provide useful information, while not trivial to find, for current residents or prospective residents who are thinking of residing in this city.
- Information about venues and estates sale prices in the city to choose a living area that fit their budgets and their social living style.
- City leaders, who wants to have an updates about the city estates and venues to help better managing the city.
- Investors also can find the information provided here useful in choosing the location for the new business.

DATA GATHERING - VENUES

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Georgetown	31.966999	-81.218094	Savannah Concrete Contractors	31.970030	-81.221072	Home Service
1	Wilshire Estates/Savannah Mall/Tranquilla Woods	31.987075	-81.154211	Redbox	31.982732	-81.152879	Video Store
2	Wilshire Estates/Savannah Mall/Tranquilla Woods	31.987075	-81.154211	Sbarro	31.983906	-81.152970	Pizza Place
3	Wilshire Estates/Savannah Mall/Tranquilla Woods	31.987075	-81.154211	Southside YMCA	31.986233	-81.152697	Gym / Fitness Center
4	Wilshire Estates/Savannah Mall/Tranquilla Woods	31.987075	-81.154211	Cloud9 Medical Spa	31.987287	-81.151505	Spa
...
787	Avalon/Oglethorpe Mall	32.003617	-81.118268	motherhood maternity	32.002861	-81.121669	Women's Store
788	Avalon/Oglethorpe Mall	32.003617	-81.118268	Havertys	32.003976	-81.122428	Furniture / Home Store
789	Avalon/Oglethorpe Mall	32.003617	-81.118268	Starship	32.000441	-81.121059	Adult Boutique
790	Avalon/Oglethorpe Mall	32.003617	-81.118268	David's Bridal	32.004173	-81.123009	Bridal Shop
791	Avalon/Oglethorpe Mall	32.003617	-81.118268	Riitz Salon	32.002399	-81.123176	Salon / Barbershop

- Venues data was obtained using **Foursquare API**.
- Search radius of 500 meters from neighborhood centers

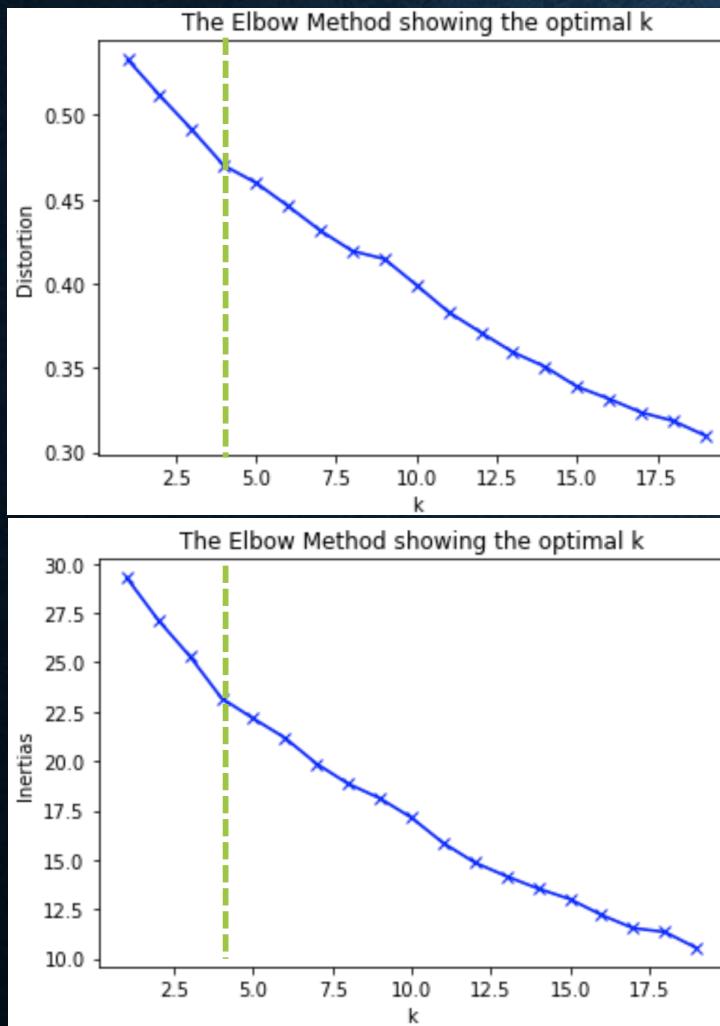
DATA GATHERING - ESTATES

Price	Estate Type	Neighborhood	Beds	Bath	Sqft	Year Built	Heating	Cooling	Parking	Lot Size	Schools	School Grades	School Ratings
0 199000	Single Family	Laroche Park	3	2	1562	1956	Forced air	Central	7.0	8712	Low Elementary School	PK-11	2
1 154900	Single Family	Victory Heights	3	2	1370	1957	Heat pump	No Data	2.0	7840	Shuman Elementary School, Hubert Middle School...	PK-5, 6-8, 9-12	2, 2, 4
2 135000	Townhouse	Godley Station	2	2	1247	2006	Forced air	Central	0.0	1742	Godley Station School, Groves High School	PK-8, 9-12	5, 2
3 262078	Single Family	Godley Station	5	3	2888	2019	Heat pump	Central	0.0	8145	Godley Station School, Groves High School	PK-8, 9-12	5, 2
4 254900	Single Family	Godley Station	4	3	2680	2011	Other	Central	0.0	9583	Godley Station School, Groves High School	PK-8, 9-12	5, 2
...
704 279900	Condo	The Village/Rio/Armstrong	3	3	1735	1982	Forced air	Central	2.0	0	Windsor Forest Elementary School, Southwest Mi...	PK-5, 6-8, 9-12	3, 4, 3
705 235000	Multi Family	None	8	4	3190	1978	Forced air	Central	0.0	0	Thunderbolt Elementary School, Myers Middle Sc...	PK-5, 6-8, 9-12	3, 3, 4
706 269000	Single Family	Godley Station	4	3	2218	2019	No Data	No Data	2.0	9191	Godley Station School, Groves High School	PK-8, 9-12	5, 2
707 29900	NaN	Brookview/Skidway Terrace/Parkview	0	0	9147	0	NaN	NaN	NaN	0	Isle Of Hope School, Johnson High School	PK-8, 9-12	4, 4
708 239900	Single Family	Highland Park	3	3	2040	2018	Forced air, Heat pump	Central	0.0	8624	Godley Station School, Groves High School	PK-8, 9-12	5, 2

- Scraped from **Zillow.com**
- Extracted estates are for sale, new construction, auction and foreclosed.

ELBOW METHOD

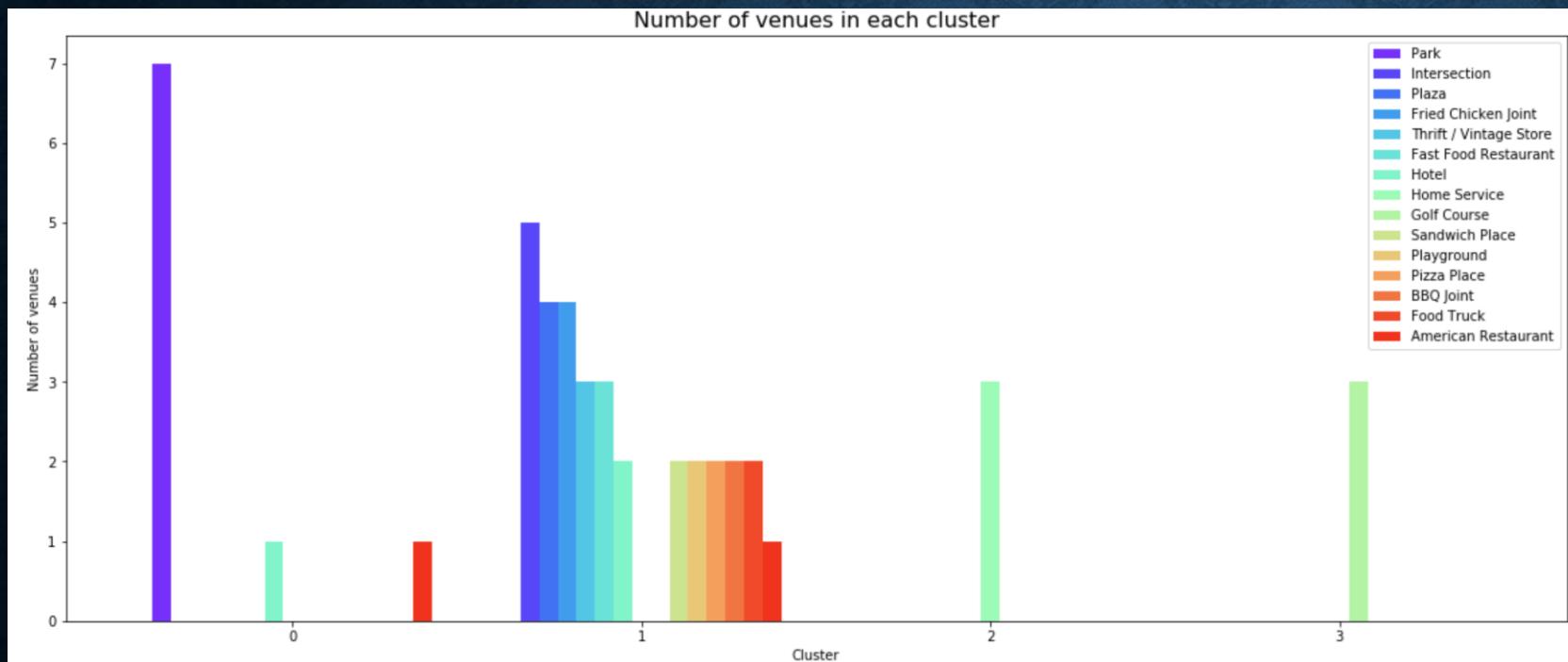
- VENUES -



- No clear clustering in the city **venues popularity data**.
- Weak evidence of an elbow in the inertias plot at $k = 4$. Therefore, I will choose $k = 4$ for further analysis.
- The lack of venues clustering is understandable since Savannah, GA is not a very big city. It has a total population of about 146,000, which is magnitude less than the population of big city such as Toronto (2.8 million) and Chicago (2.7 million). Therefore, the amount of venues in Savannah is also a lot less, which leads to a lesser degree of business competition and segregation.

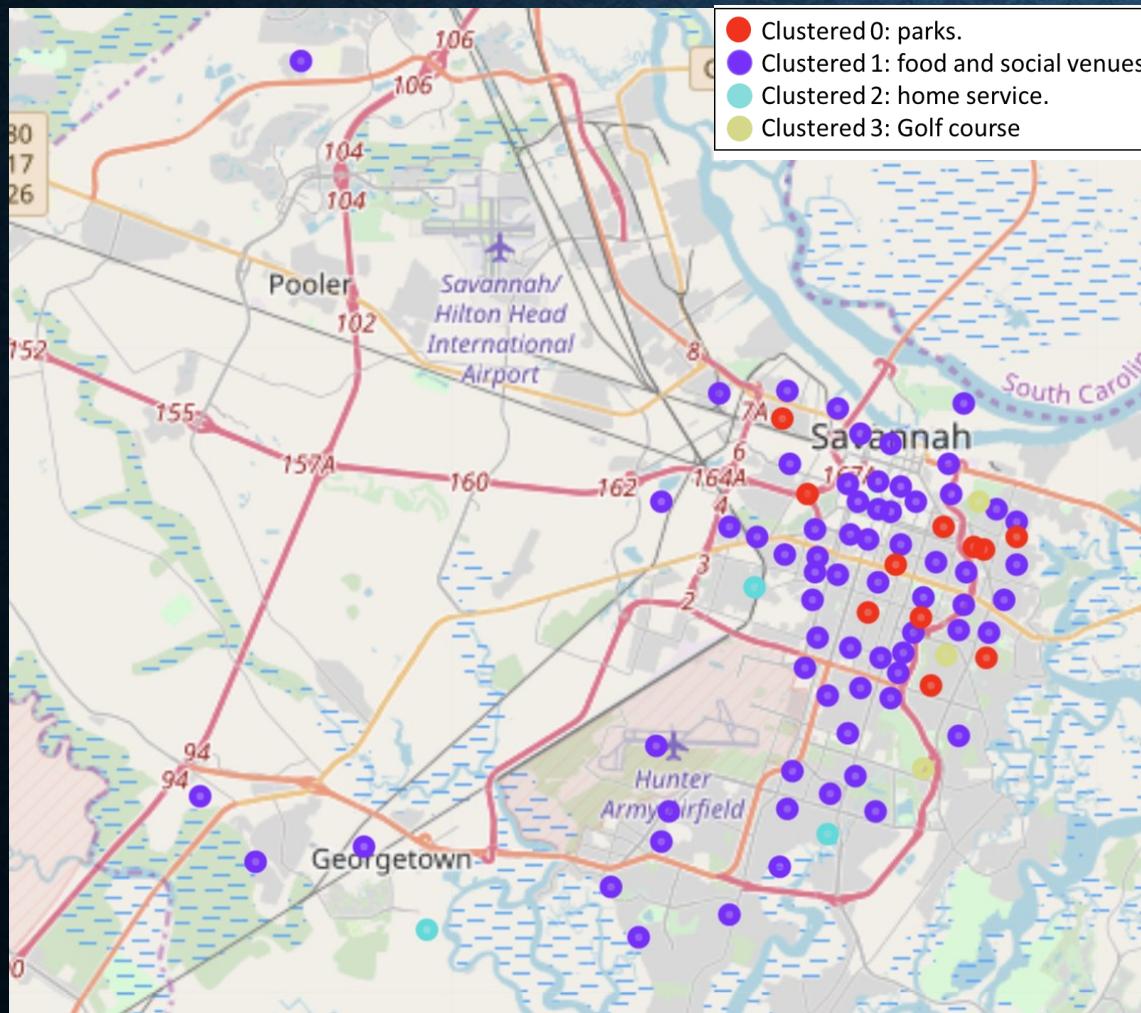
K-MEAN CLUSTERING

- VENUES -



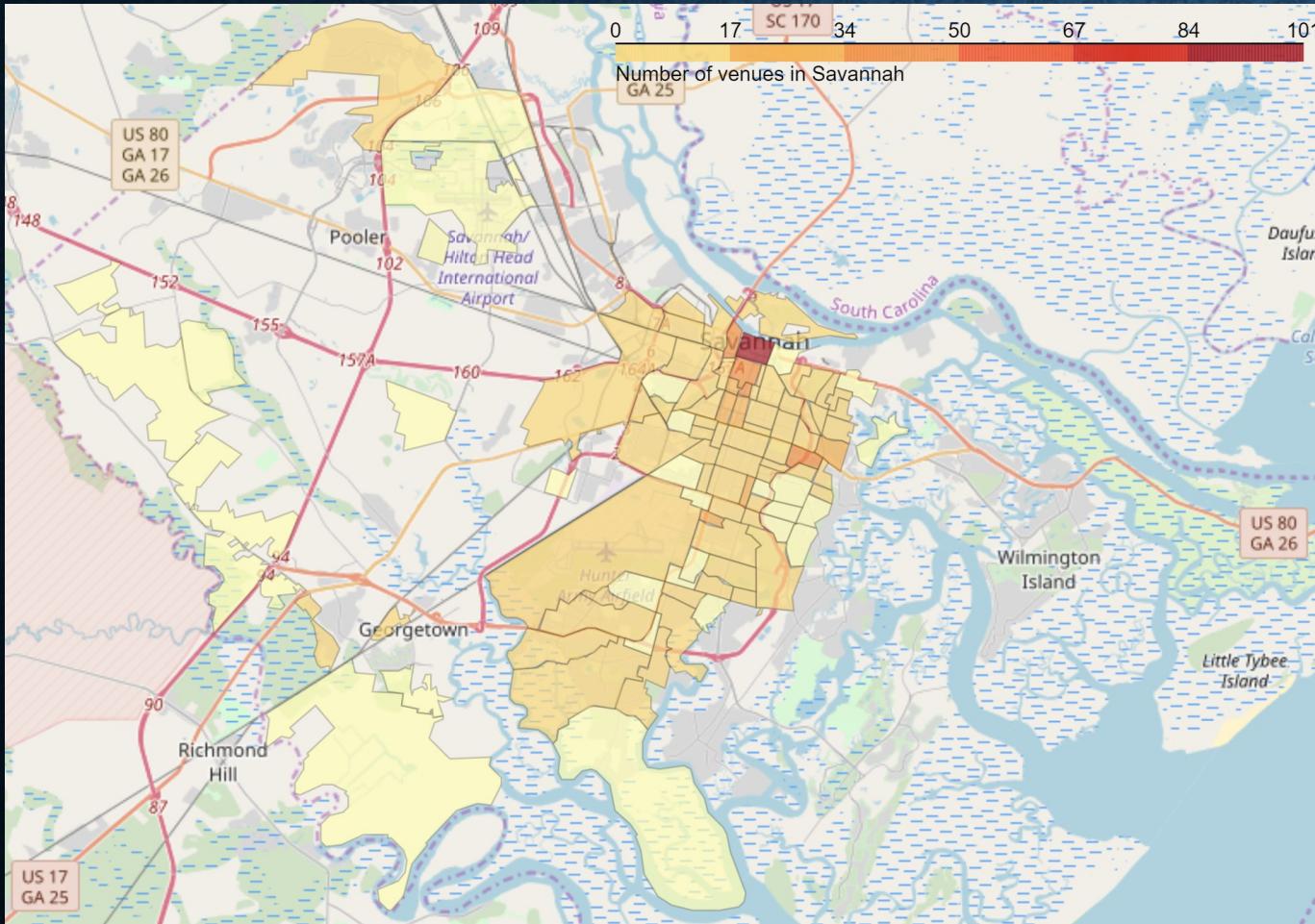
- **Cluster 0:** parks.
- **Cluster 1:** food and social venues.
- **Cluster 2:** home service.
- **Cluster 3:** Golf course

MAP OF NEIGHBORHOOD - CLUSTERED BY VENUES -



- Most of the venues in the city are social and food venues which are distributed evenly.
- those who prefer park and recreations might like to reside toward the north and north-east side of the city.
- Golf enthusiast can find a few golf courts on the east side of the city.

VENUES IN EACH NEIGHBORHOOD

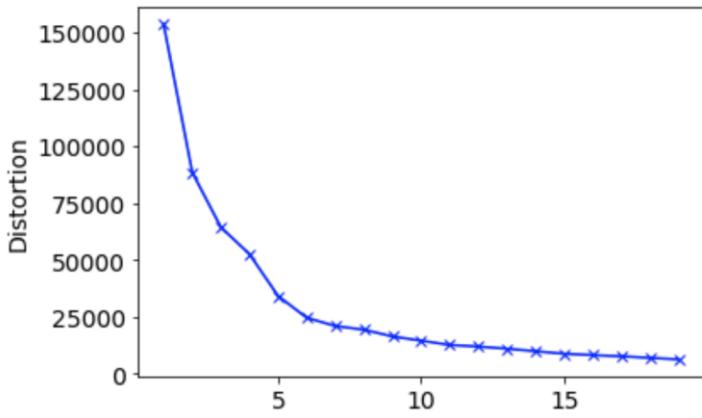


- The number of venues is most densely populated in downtown Savannah, that is the South Historic District and North Historic District neighborhoods

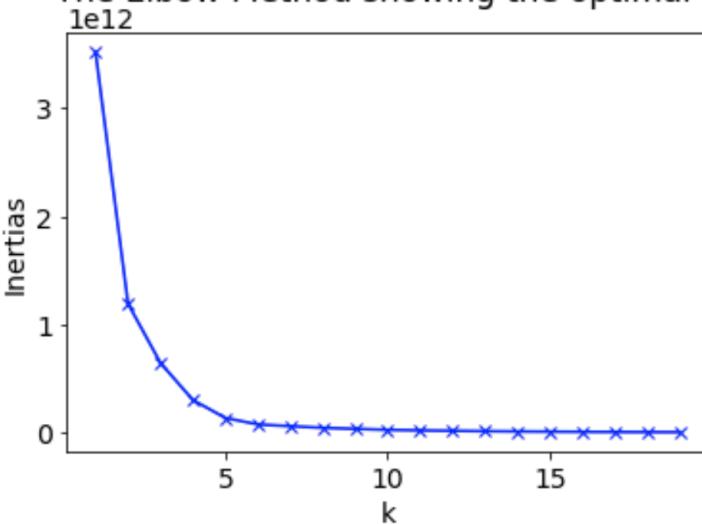
ELBOW METHOD

- ESTATES SALE PRICES -

The Elbow Method showing the optimal k



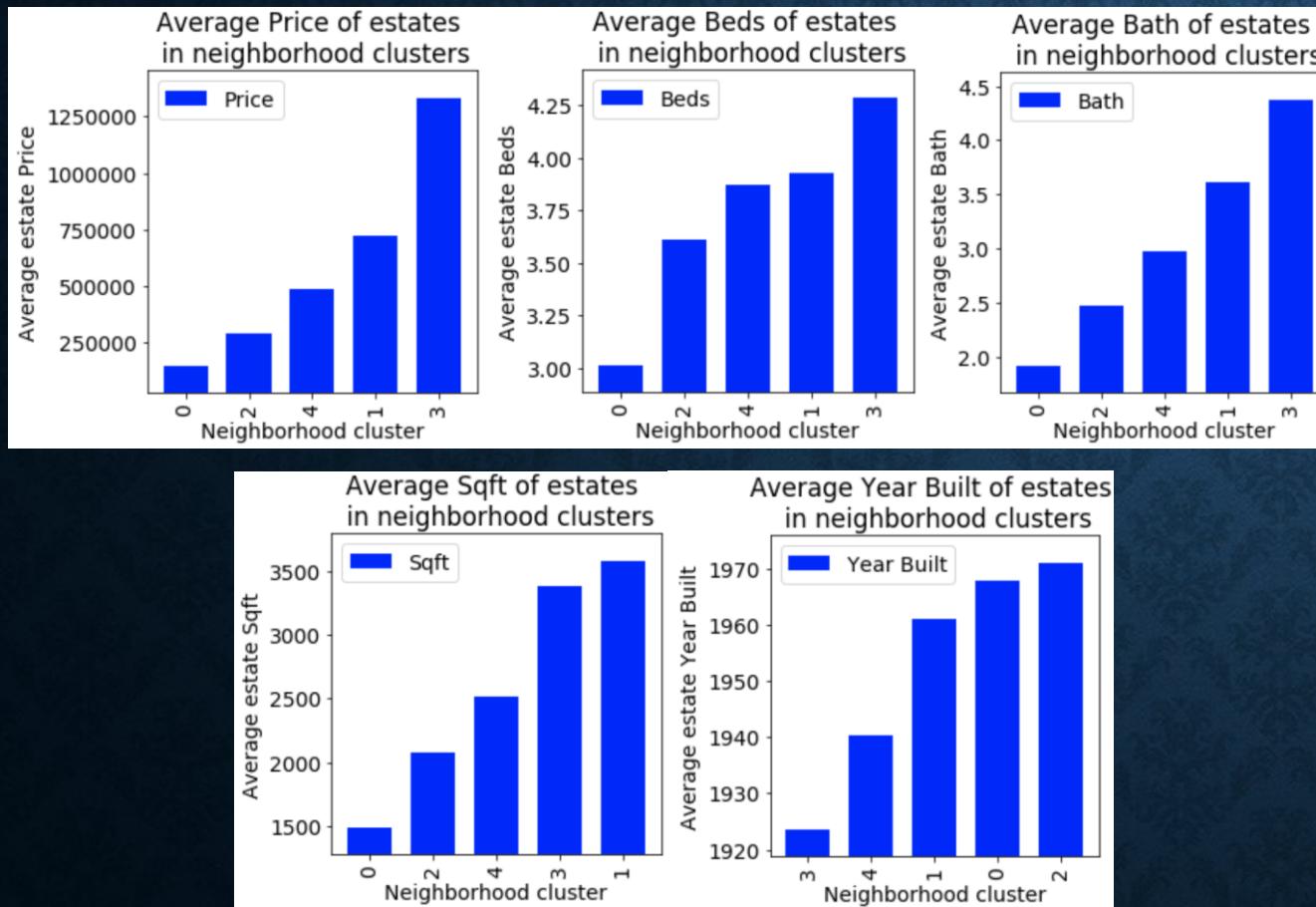
The Elbow Method showing the optimal k



- Estates data used: price, # of bedrooms, # of bathrooms, sqft, and year built.
- Clear clustering in the estates data.
- Elbow in the inertias and distortion plot at $k = 5$.
Therefore, I will choose $k = 5$ for further analysis.

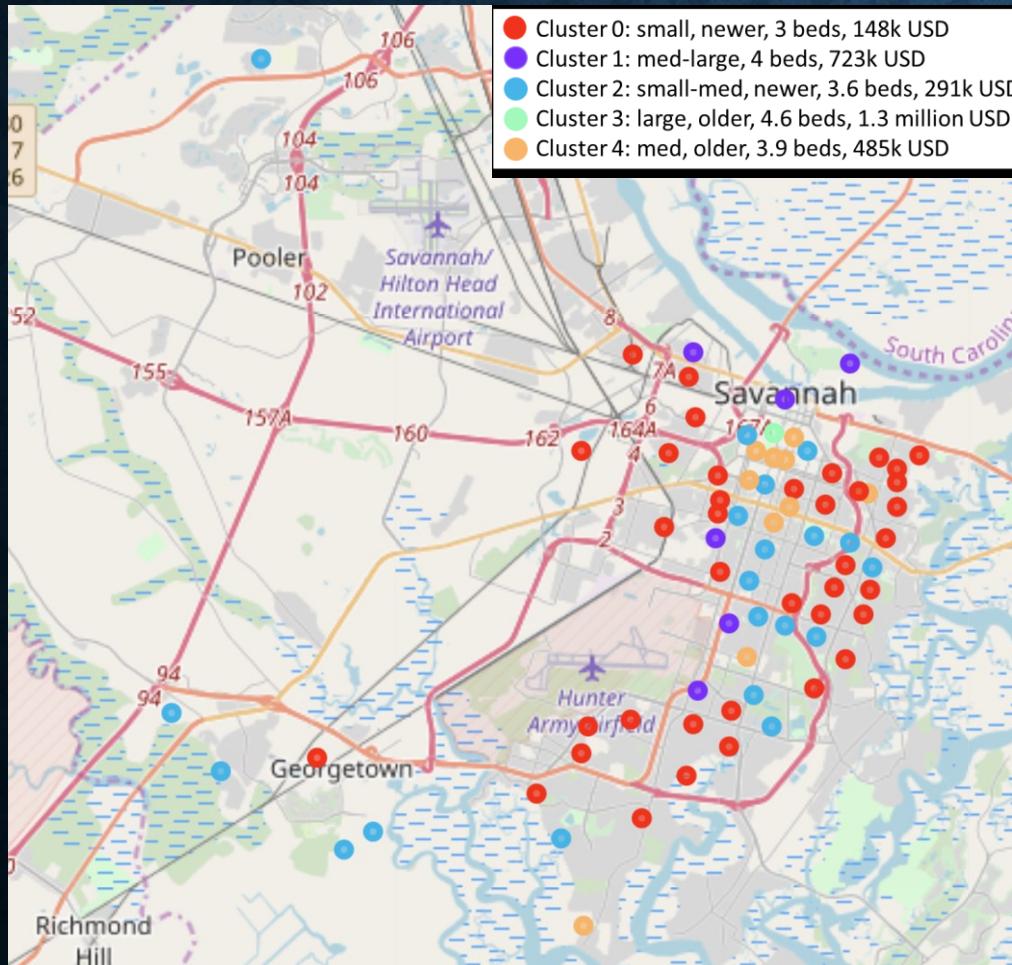
CLUSTERING RESULTS

- ESTATES -



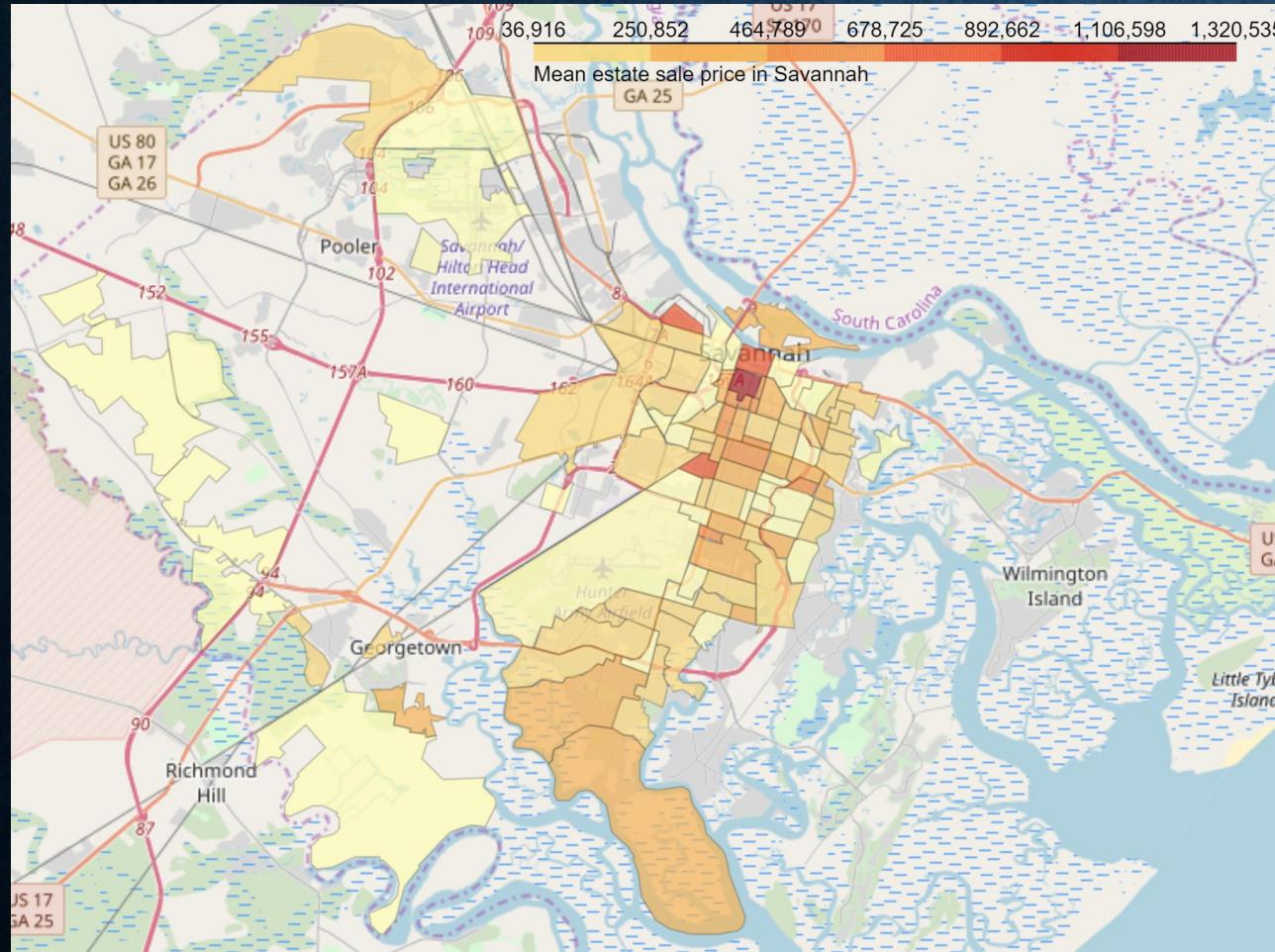
- **Cluster 0** = small newer estates with about 3 beds and sale price about 148K USD.
- **Cluster 2** = small-medium newer estates with about 3.6 beds and sale price about 291K USD.
- **Cluster 4** = medium older estates with about 3.9 beds and sale price about 485K USD.
- **Cluster 1** = medium-large estates with about 4 beds and sale price about 723K USD.
- **Cluster 3** = large older estates with about 4.3 beds and sale price about 1.3 million USD.

MAP OF NEIGHBORHOOD - CLUSTERED BY ESTATES -

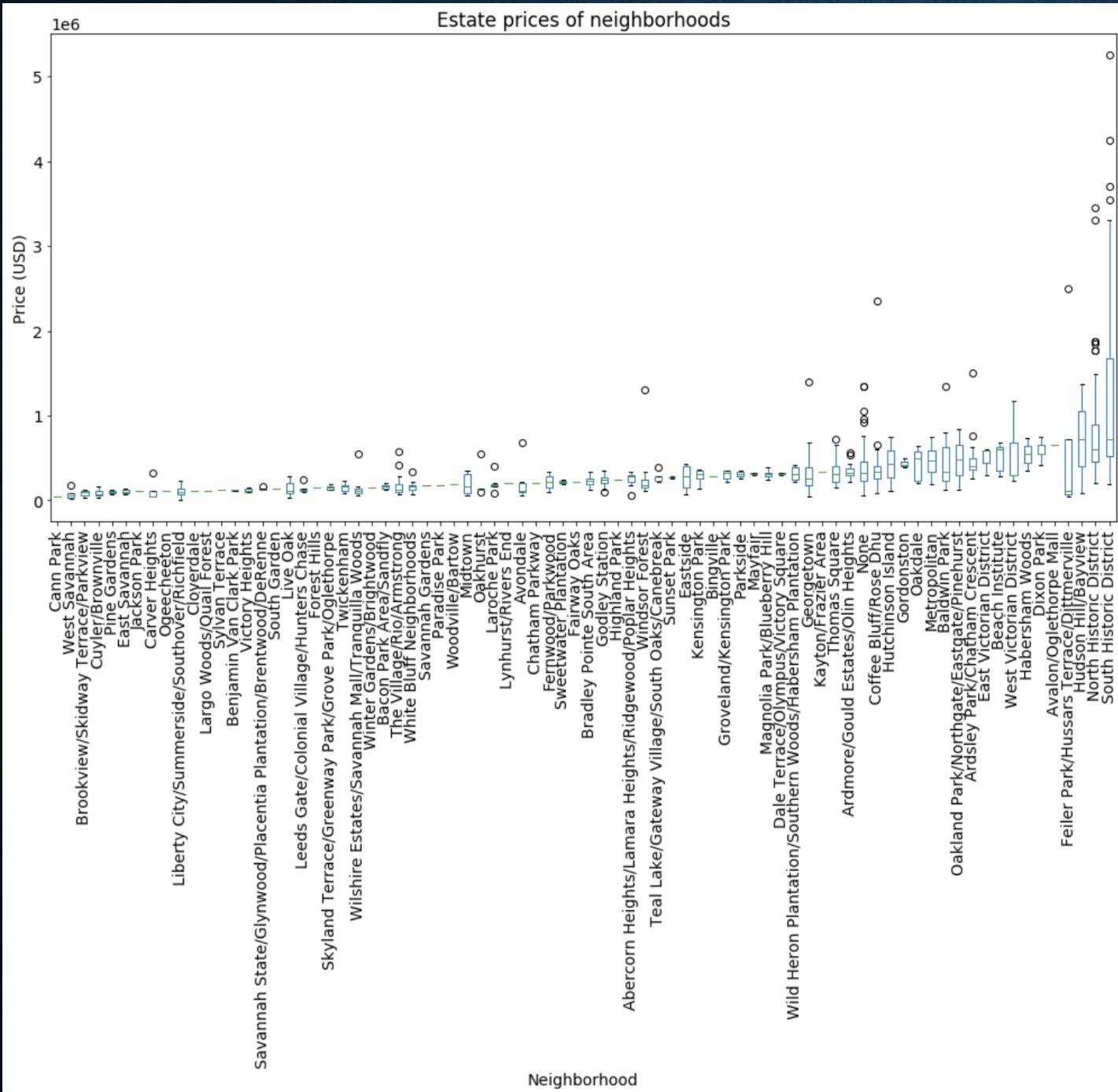


- The neighborhoods segregate into 5 different groups with different range of estates sale prices and estate sizes.
- The **most expensive, largest, and oldest** estates locate in the downtown area in the South Historic District.
- Newer estates were built away from the downtown area and are generally smaller and cheaper in price.

AVERAGE ESTATES SALE PRICES

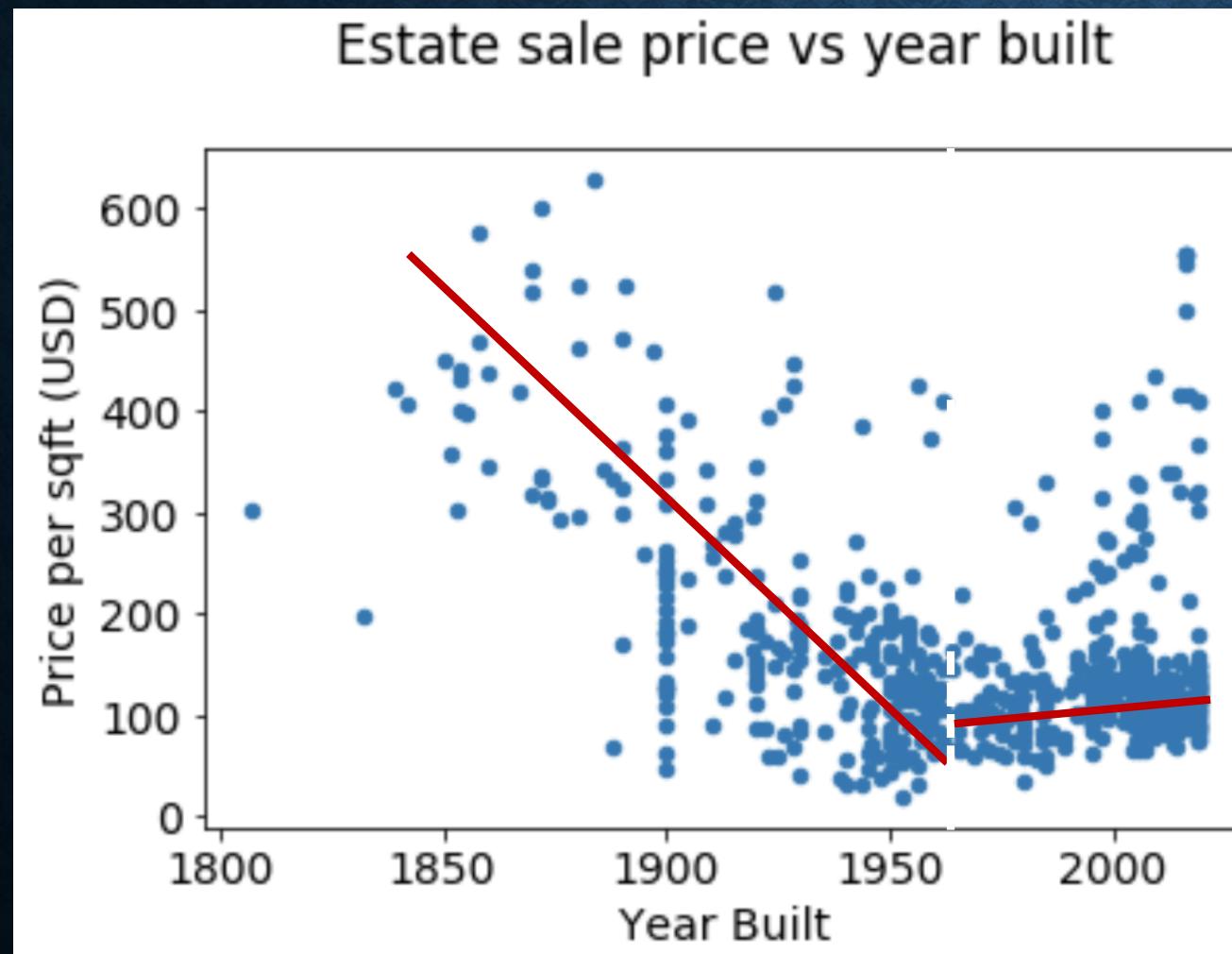


- The most expensive estates seem to locate in the downtown area (**South and North Historic District**), with an average sale price of 1.3 million USD



- The estate sale price is **highly spread** for neighborhoods with high average estate sale prices, such as Hudson Hill/Bayview, North Historic District, and South Historic District.

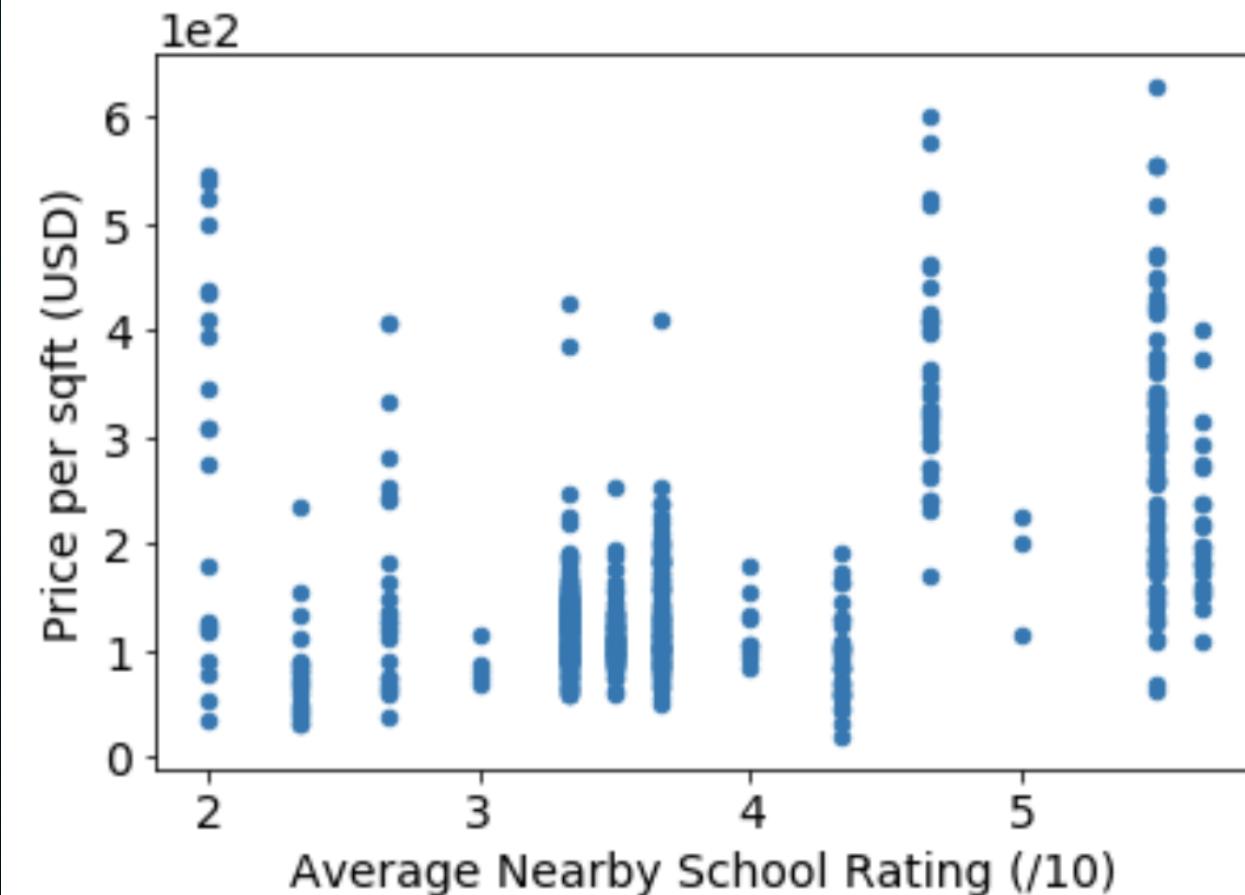
ESTATES' YEAR BUILT



- There are **two different trends** present.
- Estates built before 1960 appears to have decreasing sale prices for newer estates (up to about 1960).
- Estates built from 1960 to present. In this case, the sale prices per sqft remains rather flat.

NEARBY SCHOOL RATINGS

Estate sale price vs nearby average school rating



- No correlation between estates sale prices and the nearby school ratings.
- This means families can choose to settle in an area with lower house cost but will have good schools nearby for their children.

CONCLUSIONS

- This report provides an analysis of venues and estates sale prices in the city of Savannah, Georgia.
- Current and future city residents can use this information helps aid them in making a good decision about where to live which suits their price range, live style.
- City leaders can use this information to aid in managing their city more effectively.